

**Rejections Under 35 U.S.C. § 103(a)**

In items 3-5 on pages 2-5 of the Office Action, the Examiner rejected claims 1-9 under 35 U.S.C. § 103(a) as being unpatentable over KEEMUX KVM Switch by Network Technology, Inc. Applicants respectfully traverse these rejections for the reasons presented below.

**Claim 1**

Claim 1 of the present invention recites, as amended: "A PC switching device installed between a keyboard without a power control key and a plurality of personal computers, intended for keyboards with power control keys, that are connected to the keyboard without a power control key, comprising ... recognizing means for recognizing that some of the plurality of personal computers which correspond to at least one of the plurality of power control switches firstly pressed are in a power-on state; selective inputting means for selectively inputting commands from one set of input devices ... to one of the plurality of personal computers; and code transmitting means for transmitting codes assigned to the power control switches when the power control switches which correspond to the personal computers recognized as being in the power-on state by the recognizing means are pressed again and the personal computers are selected by the selective inputting means."

In claim 1, the power of the personal computers may be controlled by a power control key on a keyboard. Referring to Fig. 8 of the present application, when one of the power control switches PC-PSWi of the PC switching device is pressed, a corresponding personal computer PC-A72i is turned on. When another press of power control switch PC-PSWi is detected, it is determined whether personal computer PC-A72i is in a power-on state, and whether the corresponding personal computer is selected by the changeover switch 716.

In claim 1, a pressed power control switch does not transmit key codes when a corresponding personal computer has not been selected, even if the corresponding personal computer is turned on. Thus, an operator cannot inadvertently turn off the power to a non-selected personal computer, even if the operator presses the power control switch corresponding to the non-selected personal computer.

The PC switching device of the present invention enables operation of personal computers having different electric power control methods using one keyboard. In contrast, the

KEEMUX KVM allows a keyboard to switch between personal computers having different operating systems.

Thus, it is the position of the Applicants that the KEEMUX KVM switch does not teach or suggest the present invention as claimed in claim 1.

#### Claim 2

Claim 2 of the present invention recites, as amended: "A PC switching device installed between a keyboard with a power control key and a plurality of personal computers intended for keyboards with power control keys, comprising: first powering means for powering all of the plurality of personal computers simultaneously by pressing the power control key on the keyboard when the plurality of personal computers are in a power-off state; ... code transmitting means for transmitting a code assigned to the power control key when the personal computers recognized as being in the power-on state ... are selected ... and the power control key is pressed; and second powering means for powering some of the personal computers when the some of the personal computers recognized as being in a power-off state ... are selected ... and the power control key is pressed again."

According to claim 2, all of the personal computers connected to the PC switching device may be turned on simultaneously by pressing the power control key on a keyboard connected to the PC switching device. Power off control is achieved by transmitting a key code only to a selected personal computer. Thus, while all the personal computers may be simultaneously powered, the personal computers are turned off selectively.

It is the position of the Applicants that the KEEMUX KVM switch does not teach or suggest the present invention as claimed in claim 2.

#### Claim 3

Claim 3 of the present invention recites, as amended: "A PC switching device installed between a keyboard with a power control key and a plurality of personal computers capable of being powered using keyboards with power control keys, comprising: powering means for powering some of the plurality of personal computers previously selected by pressing the power

control key on the keyboard when all of the plurality of personal computers are in a power-off state; ... and code transmitting means for transmitting a code assigned to the power control key when the personal computers recognized as being in the power-on state ... are selected ... and the power control key on the keyboard is pressed again."

According to claim 3, personal computers to be powered using a power control key on a keyboard are selected using, for example, a DIP switch. For example, when all the PCs are powered off and the first switch of the DIP switch is selected, then only the corresponding personal computer is powered on. Thus, the power of a personal computer may be individually turned on or turned off.

It is the position of the Applicants that the KEEMUX KVM switch does not teach or suggest the present invention as claimed in claim 3.

#### Claims 4 and 5

Claim 4 of the present invention recites, as amended: "A PC switching device installed between a keyboard and a plurality of personal computers, comprising: transistors controlling connecting states between power supply terminals of a plurality of personal computers for powering the keyboard and a power receiving terminal of the keyboard; and comparators comparing a voltage at each of the power supply terminals with a voltage of the power receiving terminal, and turning on some of the transistors when the former is higher than the latter, but tuning off other transistors when the former is lower than the latter."

If there are differences in supply voltages from the personal computers, without the transistors and comparators of claim 4, undesired reverse current flows into a personal computer that has a low supply voltage or has not been powered on through a corresponding transistor. However, according to claim 4, the undesired reverse current can be avoided by comparing the input voltage and the output voltage of each of the transistors to control the turning on and off of the transistors. Thus, referring to Fig. 16, power from PC1 can be supplied to the main CPU 710 and the keyboard 74 with less voltage drop, avoiding the reverse current from PC2 or PC3 to PC1.

Similar to claim 4, claim 5 recites: "A PC switching device installed between a keyboard and a plurality of personal computers, comprising: transistors controlling connecting states

between power supply terminals of a plurality of personal computers for powering the keyboard and a power receiving terminal of the keyboard; ... and comparators comparing a voltage divided by each of the first voltage dividers with a voltage divided by the second voltage dividers, and turning on some of the transistors when the former is higher than the latter, but turning off other transistors when the former is lower than the latter."

It is the position of the Applicants that the KEEMUX KVM switch does not teach or suggest the present invention as claimed in claims 4 and 5.

#### Dependent Claims

Claims 6 and 7 depend from independent claim 4 and claims 8 and 9 depend from independent claim 5 and are patentable over the prior art for at least the reasons discussed above.

#### **CONCLUSION**

In accordance with the foregoing, it is respectfully submitted that all outstanding objections and rejections have been overcome and/or rendered moot, and further, that all pending claims patentably distinguish over the prior art. Thus, there being no further outstanding rejections, the application is submitted to be in condition for allowance, which action is earnestly solicited.

If there are any formal matters remaining after this response, the Examiner is requested to telephone the undersigned to attend to these matters.

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Finally, if there are any additional fees associated with filing of this Amendment, please charge the same to our Deposit Account No. 19-3935.

Respectfully submitted,

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**VERSION WITH MARKINGS TO SHOW CHANGES MADE**

**IN THE CLAIMS**

Please **AMEND** the following claims:

1. (ONCE AMENDED) A PC switching device, [which is] installed between a keyboard without a power control key and a plurality of personal computers, intended for keyboards with power control keys, that [which] are connected to the keyboard without a power control key, [comprises] comprising:

a plurality of power control switches corresponding to [said] the plurality of personal computers;

[a] recognizing means for recognizing that some of the plurality of personal computers which correspond to at least one of the plurality of power control switches firstly pressed are in a power-on state;

[a] selective inputting means for selectively inputting commands from one set of input devices, including the keyboard without a power control key, to one of the plurality of personal computers; and

[a] code transmitting means for transmitting codes assigned to the power control switches when the power control switches which correspond to the personal computers recognized as being in the power-on state by [said power-on-state] the recognizing means are pressed again and [said] the personal computers are selected by [said] the selective inputting means.

2. (ONCE AMENDED) A PC switching device [which is] installed between a keyboard with a power control key and a plurality of personal computers intended for keyboards with power control keys, [comprises] comprising:

[a] first powering means for powering all of [said] the plurality of personal computers simultaneously by pressing [said] the power control key on [said] the keyboard when [said] the plurality of personal computers are in a power-off state;

[a] recognizing means for recognizing that all of [said] the plurality of personal computers are in [a] the power-on state;

[a] selective inputting means for selectively inputting commands from one set of input devices, including the keyboard with a power control key, to one of the plurality of personal computers;

[a] code transmitting means for transmitting a code assigned to the power control key when the personal computers recognized as being in the power-on state by [said] the recognizing means are selected by [said] the selective inputting means and [said] the power control key is pressed; and

[a] second powering means for powering some of [said] the personal computers when [said] the some of the personal computers recognized as being in a power-off state by [said] the recognizing means are selected by [said] the selective inputting means, and [said] the power control key is pressed again.

3. (ONCE AMENDED) A PC switching device [which is] installed between a keyboard with a power control key and a plurality of personal computers [fit for] capable of being powered using keyboards with power control keys, [comprises] comprising:

[a] powering means for powering some of [said] the plurality of personal computers [which have been] previously selected by pressing [said] the power control key on [said] the keyboard when all of [said] the plurality of personal computers are in a power-off state;

[a] recognizing means for recognizing that [said] the selected personal computers are turned on;

[a] selectively inputting means for [selective] selectively inputting commands from one set of input devices, including [said] the keyboard with[out] a power control key, to one of the plurality of personal computers; and

[a] code transmitting means for transmitting a code assigned to [said] the power control key when the personal computers recognized as being in the power-on state by [said] the recognizing means are selected by [said] the selective inputting means and [said] the power control key on [said] the keyboard is pressed again.

4. (ONCE AMENDED) A PC switching device [which is] installed between a keyboard and a plurality of personal computers, [comprises] comprising:

transistors [for] controlling connecting states between power supply terminals of a plurality of personal computers for powering the keyboard [keyboards] and a power receiving terminal of [said] the keyboard; and

comparators [for] comparing a voltage at each of [said] the power supply terminals with a voltage of [said] the power receiving terminal, and turning on some of [said] the transistors when the former is higher than the latter, but tuning off other transistors when the former is lower than the latter.

5. (ONCE AMENDED) A PC switching device [which is] installed between a keyboard and a plurality of personal computers, [comprises] comprising:

transistors [for] controlling connecting states between power supply terminals of a plurality of personal computers for powering [keyboards] the keyboard and a power receiving terminal of [said] the keyboard;

first voltage dividers [for] dividing [each of the voltages] a voltage at [said] each of the power supply terminals;

second voltage dividers [for] dividing [the] a voltage at [said] the power receiving terminal by [the] a ratio equal to that of [said] a corresponding one of the first voltage dividers; and

comparators [for] comparing a voltage divided by each of [said] the first voltage dividers with a voltage [divides] divided by [said] the second voltage [divider] dividers, and turning on some of [said] the transistors when the former is higher than the latter, but [tuning] turning off other transistors when the former is lower than the latter.

6. (TWICE AMENDED) A PC switching device according to claim 4, wherein [said] the comparators are driven by power supplied from [said] the power supply terminals of the plurality of personal computers.

7. (TWICE AMENDED) A PC switching device according to claim 4, wherein [said] the comparators are driven by power supplied from [said] the power receiving terminal of the keyboard.

8. (ONCE AMENDED) A PC switching device according to claim 5, wherein [said] the comparators are driven by power supplied from [said] the power supply terminals of the plurality of personal computers.



9. (ONCE AMENDED) A PC switching device according to claim 5, wherein [said] the comparators are driven by power supplied from [said] the power receiving terminal of the keyboard.